AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-24. (cancelled).

25. (new) A processing means for pipelined processing of data packets, said processing means comprising:

an input arranged to receive data packets;

an output;

a device; and

a pipeline connected between the input and the output, said pipeline having i) on an input side, at least one processing stage connected to receive the data packets from the input, ii) an access point connected to an output of said one processing stage, iii) a request channel connecting said access point to said device, said request channel comprising a transmit connection for transmitting a request from said access point to said device and a receive connection for said access point to receive a response from said device, said request being based on data processing information extracted from at least part of one of said data packets and any additional information associated with said one data packet, said request being at least one of i) a first type of said request directing said device to perform a

data processing operation which alters said one data packet, and

ii) a second type of said request directing said device to perform a data processing operation which alters said any additional information associated with said one data packet, said response to said first type of said request including an alteration to said one data packet, said response to said second type of request including an alteration to said any further additional information associated with said one data packet, wherein,

said access point comprises

i) at least one FIFO store for storing data entering the access point, said data corresponding to said at least part of said one data packet and said any additional information associated with said one data packet,

ii) a response FIFO store connected to said device via said receive connection, said response FIFO store for storing a first response corresponding to said request, said first response received on the receive connection,

iii) a synchronization mechanism arranged to synchronize fetching of a first entry in said at least one FIFO store and the first response in said response FIFO store, said first entry corresponding to said at least part of said one data packet and said any additional information associated with said one data packet, and

iv) a response substitution entity connected to receive a) said first response as an output of said response FIFO store and b) said first entry as an output of said at least one FIFO store, said response substitution entity arranged to form a resultant data packet by merging said received first response into said received first entry, said resultant data packet being an output of said access point.

26. (new) The processing means of claim 25, wherein,

said input is a receiver,

said output is a transmitter,

said access point comprises plural of said request channel, and

said access point provides simultaneous access to plural of said device via said plural request channels, in response to the request from said access point, each said device adapted to perform a corresponding data processing operation which alters at least a part of one of i) a corresponding data packet and ii) a corresponding additional information associated with the corresponding data packet, and

a further access point is connected intermediate an output side of the input and the input side of the one processing stage such that the one processing stage is connected to receive data packets input via the further access point.

27. (new) The processing means of claim 26, wherein,

said access point comprises plural of said receive connection and plural of said response FIFO store,

each one of said plural receive connections is connected to one of said plural response FIFO stores, and

said access point provides simultaneous access to plural of said device via said plural request channels, in response to the request from said access point, at least one of said device adapted to perform respective corresponding data processing operations which alters i) the corresponding data packet in response to said first type of said request, and ii) the corresponding additional information associated with the corresponding data packet in response to said second type of said request.

28. (new) The processing means of claim 26, wherein said synchronization mechanism is a fixed delay mechanism adapted to initiate a fixed time delay upon entry of at least part of a data packet into the access point.

29. (new) The processing means of claim 28, wherein said fixed time delay is equal to or longer than the time required to process the most time consuming data processing operation by any of said plural devices.

30. (new) The processing means of claim 28, wherein said fixed time delay mechanism comprises is adapted to transmit a triggering signal when the initiated fixed time delay has elapsed.

31. (new) The processing means claim 28, wherein said fixed time delay mechanism comprises a shift register.

32. (new) The processing means of claim 25, wherein,

said access point comprises plural of said response FIFO store with a first entry, and

said synchronization mechanism comprises completion driven conditional logic adapted to determine whether all relevant response FIFO stores from among said plural response FIFO stores have data in the first entry.

33. (new) The processing means of claim 25, wherein,

said access point further comprises an access unit connected to said transmit connection, and

said access unit is adapted to receive the data processing information extracted from said one data packet, said access unit adapted for using said data processing information in creating said request and to transmit said request to said device on said transmit connection.

34. (new) The processing means of claim 33, wherein,

said data processing information comprises information related to the handling of the response received from said device; and

said access unit comprises an access unit FIFO store for storing said information related to the handling of the response.

35. (new) The processing means of claim 26, wherein,

said access point comprises plural access units and plural of said transmit connection, each an access unit connected to different one of said transmit connections, each transmit connection connected to a different one of said devices, and

each said access unit is adapted to receive the data processing information extracted from said one data packet, to use said data processing information in creating said request and to transmit said request to the connected one of said devices on said connected transmit connection.

36. (new) The processing means of claim 30, wherein,

said access point comprises an access unit connected to said transmit connection, said access unit being adapted to receive the data processing information extracted from said one data packet, to use said data processing information in creating

said request and to transmit said request to said device on said transmit connection, and

said fixed time delay mechanism is adapted to sending said triggering signal at least to said access unit, said access unit being adapted to fetching the response in said response FIFO store(s) responsive to said triggering signal.

37. (new) The processing means of claim 25, wherein said access point comprises a driver table comprising data processing information entries and associated driver identifier entries, said access point being adapted to receiving a driver identifier and to extracting, via said driver identifier, data processing information from said driver table.

38. (new) The processing means of claim 26, wherein, said access point comprises a driver table comprising data processing information entries and associated driver identifier entries said access point being adapted to receiving a driver identifier and to extracting via said driver identifier, data processing information from said driver table, and

said access point comprises a driver table for each of said request channels.

39. (new) The processing means of claim 25, further comprising:

at least one switch being connected between at least one transmit connection and plural devices, said switch being configurable to provide access to any one of said devices via said transmit connection.

40. (new) An integrated circuit, comprising:

a processing means for pipelined processing of data packets, said processing means comprises an input, an output and a pipeline having at least one processing stage, said pipeline connected between the input and the output,

wherein said processing means further comprises:

at least one access point providing access to a device;

a request channel connecting said device to said access point, said request channel comprising a transmit connection for transmitting a request to said device and a receive connection for receiving a response from said device, said request is based on data processing information extracted from at least part of one of said data packets and any additional information associated with said one data packet,

said access point comprising at least one FIFO store for storing data entering the access point, said data corresponding to said at least part of one of said data packet and any additional information associated with said data packet;

said access point further comprising a response FIFO
store connected to said device via said receive connection,

said response FIFO store for storing a first response
corresponding to said request and received on the receive
connection; and

said access point further comprising a synchronization
mechanism adapted to synchronize the fetching of the first entry
in said at least one FIFO store and the first response in said
response FIFO store, said first entry corresponding to said at
least part of one of said data packet and any additional
information associated with said data packet; and wherein a
response substitution entity is configured to merge said first
response into said at least part of one of said data packet and
any additional information associated with said data packet.

41. (new) A computer unit comprising:

an integrated circuit having a processing means for
pipelined processing of data packets, wherein said processing
means comprises an input, an output and a pipeline having at
least one processing stage, and wherein said pipeline is
connected between the input and the output, wherein,

said pipeline has at least one access point providing
access to a device;

said device is connected to said access point via a
request channel;

said request channel comprises a transmit connection for transmitting a requests to said device and a receive connection for receiving a response from said device;

said request being based on data processing information extracted from at least a part of one of said data packet and any additional information associated with said data packet;

said access point comprises at least one FIFO store for storing data entering the access point; said data corresponding to said at least part of one of said data packet and any additional information associated with said data packet;

said access point further comprises a response FIFO store connected to said device via said receive connection, said response FIFO store for storing a first response corresponding to said request and received on the receive connection; and

said access point further comprises a synchronization mechanism adapted to synchronize the fetching of the first entry in said at least one FIFO store and the first response in said response FIFO store, said first entry corresponding to said at least part of one of said data packet and any additional information associated with said data packet; and wherein a response substitution entity is configured to merge said first response into said at least part of one of said data packet and any additional information associated with said data packet.

42. (new) A method of pipelined processing of a data packet in a processing means comprising a pipeline, said pipeline comprising at least one processing stage, wherein said method comprising the following steps:

receiving, in an access point of said pipeline, at least part of said data packet;

extracting data processing information from said at least part of one of said data packet and any additional information associated with said data packet,

storing at least part of the data packet and any additional information associated with said data packet in at least one FIFO store in said access point;

transmitting, from said access point, a request, based on said extracted data processing information, to a device on a transmit connection;

receiving, in said access point, a first response corresponding to said request, from said device on a receive connection;

storing said first response in a response FIFO store in said access point, said response FIFO store being connected to said device via said receive connection;

extracting the first response in said response FIFO store and the first entry in said at least one FIFO store, said first entry corresponding to said at least part of one of said

data packet and any additional information associated with said
data packet; and

merging, said first response into said at least part of
one of the data packet and any additional information associated
with said data packet.

43. (new) The method of claim 42, wherein more than one
request is transmitted simultaneously from said access point on
more than one transmit connection, each transmit connection being
connected to a different device.

44. (new) The method of claim 42, comprising the
further step of initiating a fixed time delay,

wherein said step of extracting is performed responsive
to the elapse of said fixed time delay.

45. (new) The method of claim 44, wherein a triggering
signal is generated when said fixed time delay has elapsed, and
said step of extracting is performed responsive to said
triggering signal.

46. (new) The method of claim 42, comprising the
further step of extracting data processing information associated
with said data packet, prior to said step of transmitting, said
step of extracting data processing information being performed by

use of an access point reference in additional information, wherein,

said request is prepared according to said data processing information, and

said step of merging is performed according to said data processing information.

47. (new) The method of claim 46, wherein,

said step of extracting data processing information further comprises the steps of: a) extracting, from said access point reference, a driver identifier, and b) looking up said driver identifier in a driver table, said driver identifier being associated with data processing information in said driver table.